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LETTER TO THE EDITOR

Comments on: ''Is alumina-on-alumina ceramic bearings total hip replacement the right choice in patients younger than 50 years of age? A 7- to 15-year follow-up study'' by P. Boyer, D. Huten, P. Loriaut, V. Lestrat, C. Jeanrot, P. Massin, published in *Orthop Traumatol Surg Res* 2010;96:616—22

We read the article by Boyer et al. with great interest.

In the series presented, all the implants had been manufactured by Ceraver. The acetabulum inserts in alumina had all been put within a titanium cup implanted in a press-fit mode; the femoral implants, all in titanium, were either fixed with cement ($n = 63$) — the stems had a smooth, polished, and anodized surface — or by cementless fixation on a press-fit mode ($n = 20$). The authors expressed reservations as to the long-term stability of the cemented stems. Even if no significant difference was found, the survival rates for the femoral implants (with failure defined as aseptic loosening, whether or not they were revised) was 91 ± 16% at 12 years of follow-up for cemented implants and 100% at nine years of follow-up for cementless implants.

Our discussion focuses on the cause of the three cases of cemented femoral implant loosening. It was only mentioned that ''the aspect of the cement mantle was optimal according to Barrack's criteria''. The rate of medullary canal filling by the femoral stem, in particular near its distal extremity, was not reported [1]. Yet, the Ceraver Osteal stem, with its quadrangular cross-section, was designed to maximize medullary canal's filling, which also prevents its misalignment in relation to the femoral diaphysis axis. The cement mantle fills residual spaces persisting between the stem and the walls of the medullary canal, finally forming a thin, and at certain places discontinuous layer. Actual loosening of this type of implant with a thin layer of cement associated with a 32-mm femoral head remains rare. With an alumina—polyethylene bearing system, only one of the 117 femoral components implanted between 1983 and 1985 in the series reported by Le Mouel et al. [2] had loosened at four years of follow-up. The survival rate (with failure defined as aseptic loosening, whether or not it was revised) was 98.9% at ten years of follow-up. The mean distal medullary canal filling rate of the series was 80.4%. With alumina—alumina ceramic bearings (the acetabular implant was cemented), three of the 98 femoral implants in Rousseau et al.'s series [3] showed loosening. Two cases of loosening, noted in the 4th postoperative year, had not been revised at 16 and 21 years of follow-ups. The distal medullary canal filling rate was 53% [1] for one of them and was not measured for the other. The third one, noted in the 9th year, required revision surgery. The survival rate (with failure defined as aseptic loosening, whether or not it was revised) was 95.2% at 20 years of follow-up.

It is this principle of maximum filling of the medullary canal by a quadrangular stem with thin-layer cementing that lead Langlais et al. to describe the ''French paradox'' [4]. Yet, on the article's radiological example of femoral loosening, the implant was valgus on the postoperative view, which implies insufficient distal medullary canal filling that unfortunately cannot be measured on the figure. Would it be possible that the three cases of femoral loosening resulted from non-compliance with the French paradox, with the medullary canal insufficiently filled by the implant stem?

Disclosure of interest

The authors declare that they have no conflict of interest concerning this article.

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